



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

# AMERICAN Journal of Mathematics.

---

SIMON NEWCOMB, Editor.

THOMAS CRAIG, Associate Editor.

PUBLISHED UNDER THE AUSPICES OF THE  
JOHNS HOPKINS UNIVERSITY.

*Πραγμάτων ἔλεγχος οὐ βλεπομένων.*

VOLUME VII. NUMBER 3.

BALTIMORE: PRESS OF ISAAC FRIEDENWALD.

AGENTS:

B. WESTERMANN & Co., *New York.*  
D. VAN NOSTRAND, *New York.*  
E. STEIGER & Co., *New York.*  
JANSEN, MCCLURG & Co., *Chicago.*  
CUSHINGS & BAILEY, *Baltimore.*  
CUPPLES, UPHAM & Co., *Boston.*

TRUBNER & Co., *London.*  
A. HERMANN, *Paris.*  
GAUTHIER-VILLARS, *Paris.*  
MAYER & MÜLLER, *Berlin.*  
ULRICO HOEPLI, *Milan.*  
KARL J. TRÜBNER, *Strassburg.*

APRIL 1885.

PUBLICATIONS OF THE JOHNS HOPKINS UNIVERSITY,  
BALTIMORE.

**I. AMERICAN JOURNAL OF MATHEMATICS.**

SIMON NEWCOMB, Editor, and THOMAS CRAIG, Associate Editor. Quarterly. 4to. Volume VII in progress. \$5 per volume.

**II. AMERICAN CHEMICAL JOURNAL.**

I. REMSEN, Editor. Bi-monthly. 8vo. Volume VII in progress. \$3 per volume.

**III. AMERICAN JOURNAL OF PHILOLOGY.**

B. L. GILDERSLEEVE, Editor. Quarterly. 8vo. Volume VI in progress. \$3 per volume.

**IV. STUDIES FROM THE BIOLOGICAL LABORATORY.**

Including the Chesapeake Zoölogical Laboratory. H. N. MARTIN, Editor, and W. K. BROOKS, Associate Editor. 8vo. Volume III in progress. \$5 per volume.

**V. STUDIES IN HISTORICAL AND POLITICAL SCIENCE.**

H. B. ADAMS, Editor. Monthly. 8vo. Volume III in progress. \$3 per volume.

**VI. CONTRIBUTIONS TO LOGIC.**

C. S. PEIRCE, Editor. Little, Brown & Co., Boston, Publishers.

**VII. JOHNS HOPKINS UNIVERSITY CIRCULARS.**

Containing reports of scientific and literary work in progress in Baltimore. 4to. Vol. I, \$5; Vol. II, \$3; Vol. III, \$2; Vol. IV in progress. \$1 per year.

**VIII. ANNUAL REPORT.**

Presented by the President to the Board of Trustees, reviewing the operations of the University during the past academic year.

**IX. ANNUAL REGISTER.**

Giving the list of officers and students, and stating the regulations, etc., of the University.  
*Published at the close of the academic year.*

The *University Circulars*, *Annual Report*, and *Annual Register* will be sent by mail for one dollar per annum.

Communications in respect to exchanges and remittances may be sent to the Johns Hopkins University (Publication Agency), Baltimore, Maryland.

---

---

## AMERICAN JOURNAL OF SCIENCE.


*Founded by Professor SILLIMAN in 1818.*

Devoted to Chemistry, Physics, Geology, Physical Geography, Mineralogy, Natural History, Astronomy, and Meteorology, and giving the Latest Discoveries in these Departments.

**Editors:** JAMES D. DANA, EDWARD S. DANA, AND B. SILLIMAN.

**Associate Editors:** PROFESSORS ASA GRAY, J. P. COOKE AND JOHN TROWBRIDGE, OF CAMBRIDGE; H. A. NEWTON, A. E. VERRILL, OF YALE; AND G. F. BARKER, OF THE UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA.

**Two Volumes of 480 pages each, published annually in MONTHLY NUMBERS.**

 Subscription price **\$6.00** (postage prepaid by Publishers); **50** cents a number. A few complete sets on sale of the First and Second Series.

*Address the Proprietors,*

**JAMES D. & E. S. DANA, New Haven, Ct.**